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Biogenic silica accumulation rates in surface sediments of the Southern Ocean corrected for sediment redistribution

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Sediment redistribution at the seafloor is a widespread process in marine environments. In the last years, increasing evidence has been found that sedimentary budgets for biogenic silica and other components may be strongly biased by sediment focussing. The natural radioisotope Thorium-230 provides a method for correcting fluxes into the sediment for this lateral transport. The ^{230}Th-normalization method has so far been applied to individual sediment cores and some longitudinal sections only, giving a first impression of the strong influence of sediment redistribution. However, the database of ^{230}Th-corrected data had been too scarce to calculate reliable spatial budgets for whole ocean basins.

Here we present a comprehensive set (114 samples) of ^{230}Th-corrected biogenic silica accumulation rate data for surface sediments in the South Atlantic and adjoining areas. The focussing-corrected budgets for silica are considerably lower than earlier estimates. The focussing-corrected accumulation rates, representing vertical fluxes into the sediment, will facilitate the comparison of core data to model results.